What is claimed is:

1. A surface-coated member comprising the following (1a) through (1c):

(1a) the surface-coated member comprising a base body, and a hard coating layer comprising at least a TiCN layer and an Al_2O_3 layer formed in this order on the surface of the base body;

(1b) said TiCN layer comprising stringer-like TiCN crystal that is grown in a direction perpendicular to said base body; and

(1c) said stringer-like TiCN crystal comprising at least two layers wherein the mean crystal width thereof is larger on the Al_2O_3 layer side than on said base body side.

2. The surface-coated member according to claim 1, wherein the mean crystal width of the stringer-like TiCN crystal on the Al_2O_3 layer side is from 0.2 to 1.5 μ m.

3. The surface-coated member according to claim 1, wherein the mean crystal width of the stringer-like TiCN crystal on the base body side is 0.7 times or less as the mean crystal width w_2 on the Al_2O_3 layer side.

4. The surface-coated member according to claim 1, wherein at least one layer comprising a material selected from a group consisting of TiN, TiCN, TiC, TiCNO, TiCO and TiNO is interposed between the layers of said stringer-like TiCN layer comprising at least two layers.

5. The surface-coated member according to claim 1, wherein said Al_2O_3 layer has an α type crystal structure.

6. The surface-coated member according to claim 1, wherein said TiCN layer comprises a carbon-rich TiCN layer located on top of said Al_2O_3 layer side where the ratio C/N of proportions of carbon C and nitrogen N is in a range of $1.5 \leqq C/N \leqq 4$, and a nitrogen-rich TiCN layer located below the carbon-rich TiCN layer where the ratio C/N is in a range of $0.2 \leqq C/N \leqq 0.7$

7. The surface-coated member according to claim 6, wherein a ratio t_C/t_N of the thickness t_C of the carbon-rich TiCN layer to the thickness t_N of the nitrogen-rich TiCN layer is in a range from 0.8 to 1.2.

8. The surface-coated member according to claim 1, wherein such a binding layer that comprisies mainly of at least titanium (Ti), aluminum (Al), tungsten (W) and cobalt (Co) is formed between said TiCN layer and said Al_2O_3 layer.

9. The surface-coated member according to claim 8, wherein said binding layer is formed through diffusion of elements from one or more of said base body, said TiCN layer and said Al_2O_3 layer.

10. The surface-coated member according to claim 8, wherein said binding layer has intermittent structure and, when it is assumed that the binding layer had continuous and uniform structure, mean thickness of said binding layer is from 0.05 to 4 μm.

11. The surface-coated member according to claim 8, wherein peak intensity I_{Al} of Al near 1400 eV, peak intensity I_W of W near 1750 eV and peak intensity I_{Co} of Co near 800 eV in

the observation data of said binding layer with Auger electron spectroscopy are in such relations that the ratio I_W/I_{Al} is in a range from 0.1 to 0.5 and ratio I_{Co}/I_{Al} is in the range from 0.1 to 0.5.

12. The surface-coated member according to claim 8, wherein concentrations of W and Co in the base body comprising hard alloy are higher on the surface than inside of the base body.

13. The surface-coated member according to claim 8, wherein concentrations of W and Co in said binding layer are twice or more higher than the concentrations of W and Co in said TiCN layer and said Al_2O_3 layer.

14. The surface-coated member according to claim 8, wherein the adhesion force of said Al_2O_3 layer is 10 to 50 N in Scratch examination.

15. The surface-coated member according to claim 8, which is a cutting tool used for machining a workpiece by bringing a cutting edge thereof into contact with the workpiece.

16. A surface-coated member comprising the following (2a) and (2b):

(2a) the surface-coated member comprises a base body and a hard coating layer made of at least a TiCN layer and an Al_2O_3 layer formed on the surface of the base body in this order; and

(2b) a TiCN layer, that is observed on the periphery of the base body exposed at the center of an abrasion dent on the surface in Calotest, includes a lower structure where crack width is small or zero, and an upper structure where crack width is larger than that of

the lower structure, observed on the periphery of said lower structure.

17. The surface-coated member according to claim 16, wherein the width of crack observed in the lower structure of said TiCN layer is 1/2 or smaller as width of crack observed in the upper structure.

18. The surface-coated member according to claim 16, wherein said TiCN layer comprises at least two layers of a lower TiCN layer where crack width is zero or small observed on the periphery of the base body that is exposed at the center of said abrasion dent, and an upper TiCN layer where crack width is larger than that of said lower TiCN layer observed on the periphery of said lower TiCN layer.

19. The surface-coated member according to claim 18, wherein the thickness t_l of said lower TiCN layer is in a range of $1\ \mu m \leqq t_l \leqq 10\ \mu m$, and the thickness t_u of said upper TiCN layer is in a range of $0.5\ \mu m \leqq t_u \leqq 5\ \mu m$ while two values of thickness satisfy an inequality $1 < t_l/t_u \leqq 5$.

20. The surface-coated member according to claim 18, wherein said TiCN layer comprises TiCN grains having a stringer structure extending at right angles to the surface of said base body while mean crystal width of the TiCN grains that constitute said upper TiCN layer is larger than the mean crystal width of the TiCN grains that constitute said lower TiCN layer.

21. The surface-coated member according to claim 20, wherein the mean crystal width w_1 in the upper layer of said TiCN layer is from 0.2 to 1.5 μm, and the mean crystal width w_2 in said lower TiCN layer is 0.7 times or less as the mean crystal width w_1 in said upper

TiCN layer.

22. The surface-coated member according to claim 18 wherein, when the composition of the TiCN layer is expressed as $Ti(C_{1-x}N_x)$, a value of x is in a range from 0.55 to 0.80 in said lower TiCN layer and in a range from 0.40 to 0.55 in said upper TiCN layer.

23. The surface-coated member according to claim 16, wherein the adhesion force of said Al_2O_3 layer is from 10 to 50N as measured in scratch examination.

24. The surface-coated member according to claim 16, wherein observation of an abrasion dent in Calotest shows cracks existing in a region from the interface of said Al_2O_3 layer with said TiCN layer to the inside of the Al_2O_3 layer.

25. The surface-coated member according to claim 8, which is a cutting tool used for machining a workpiece by bringing a cutting edge thereof into contact with the workpiece.

26. A surface-coated member comprising the following (3a) and (3b):

(3a) the surface-coated member comprises a base body and a hard coating layer comprising at least one TiCN layer formed on the surface of the base body;

(3b) said TiCN layer has, at least in a part thereof, titanium carbonitride grains extend in a direction perpendicular to the surface of said base body and shows a stringer structure when vertical cross section is observed; and

(3c) said TiCN layer includes a fine grained titanium carbonitride layer that shows a needle-like structure extending in random directions when observed on the surface.

27. The surface-coated member according to claim 26, wherein a TiCN layer, that is observed on the periphery of the base body exposed at the center of an abrasion dent on the surface in Calotest, includes a lower structure where crack width is small or zero, and an upper structure where crack width is larger than that of the lower structure, observed on the periphery of said lower structure, and

a ratio L_U/L of the length L_U in the radial direction of said upper structure to the length L in the radial direction of the entire TiCN layer ($L = L_U + L_L$, where L_L is length in the radial direction of said lower structure) is in a range from 0.05 to 0.15.

28. The surface-coated member according to claim 26, wherein the titanium carbonitride grains have a mean aspect ratio of 2 or higher when the crystal grains are observed from the surface.

29. The surface-coated member according to claim 28, wherein the mean length of long axis of said titanium carbonitride grains is 1 μm or less when said titanium carbonitride grains are observed from the direction of surface.

30. The surface-coated member according to claim 26, wherein the surface of said fine grain titanium carbonitride layer is coated with an upper titanium carbonitride layer of which titanium carbonitride grains have a larger mean crystal width than that in said fine grain titanium carbonitride layer, and surface of said upper titanium carbonitride layer is coated with an aluminum oxide layer.

31. The surface-coated member according to claim 30, wherein the thickness t_l of said fine grain titanium carbonitride layer is in a range of $1\ \mu m \leqq t_l \leqq 10\ \mu m$ and the

thickness t_u of said upper titanium carbonitride layer is in a range of 0.5 μm $\leqq$ t_u $\leqq$ 5 μm while two values of thickness satisfy an inequality $1 < t_l/t_u \leqq 5$.

32. The surface-coated member according to claim 26, wherein the adhesion force of said Al_2O_3 layer is 10 to 50 N in Scratch examination.

33. The surface-coated member according to claim 26, which is a cutting tool used for machining a workpiece by bringing a cutting edge thereof into contact with the workpiece.